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ABSTRACT

Before discussing plans for the National Institute of Education (NIE), the author briefly reviews some of the research products of the Office of Education including the comparative school mathematics program, individually prescribed instruction, microteaching, intermediate science curriculum study, and Sesame Street. The Institute will be a separate agency within HEW, responsible for the planning and direction of research and development at all levels of schooling. The director, who will be a Presidential appointee, will be assisted by a National Advisory Council. There will be at least two kinds of functioning groups--task forces addressing major problems and study groups seeking to understand the nature of the processes of education at a deeper level. The Institute's objectives will include 1) seeking new knowledge and insights into educational experience through basic research; 2) seeking useful alternatives in educational practice; 3) strengthening the research and development capability through the stimulation and training of new scholars; and 4) undertaking the invention and perfection of ways to deliver educational innovations known to be successful. The Institute will assume most of the activities now conducted by the National Center for Educational Research and Development. The new National Foundation for Higher Education will encourage the demonstration and adoption of promising practices in higher education. (MBM)

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A NEW ORDER OF EDUCATIONAL RESEARCH AND DEVELOPMENT*

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When I received Professor Gruhn's kind invitation to be with you today, I began to prepare myself to speak to you about what I consider to be one of the Administration's most profoundly important educational initiatives, the National Institute of Education.

In the course of my preparations, I leafed through testimony prepared for the House Select Subcommittee on Education which has been conducting hearings on the Institute.

One witness whose paper I read expressed his conviction that federally sponsored educational research and development would be far more productive than is presently the case if it were removed from Office of Education jurisdiction and placed in NIE. In a line Federal agency such as OE, he reasoned, interests change from Commissioner to Commissioner and experimental failure, the quintessence of the research route to invention, tends to become unacceptable in the vagaries of bureaucratic life.

"Imagine Thomas Alva Edison," he said, "at age 30, under annual contract to a public line agency, and you have the picture -- minus his light bulb."

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I am not persuaded that the Office of Education sheds more darkness than light in the land and yet I agree with his point. If educational research and development is going to be the success it really must be in this country, then it cannot exist in the compromised anonymity of the conventional Federal bureaucracy. The time has clearly come, as President Nixon proposes, to establish a focus for educational research and experimentation in the United States. To achieve a genuine impact on education's problems, we must create the setting and the atmosphere in which work of this crucial and delicate nature can thrive, funded generously, isolated from political and administrative whim and dedicated to one purpose alone -- the discovery and application of new alternatives in education.

The Office of Education has held principal responsibility for Federal educational research and development since passage of the Cooperative Research Act in 1954. Long before that, indeed at its origin, the Office was charged with the assembly of data, certainly a respectable process of research. The more full-blown research role was greatly expanded by the passage of the Elementary and Secondary Education Act of 1965 which established our educational laboratories and research and development centers and thereby gathered large teams of talented people. Some of the resulting work has been exceptional.

New educational products emerging from this effort have included the Comparative School Mathematics Program developed by OE's Central Midwestern Regional Education Laboratory in St. Ann, Missouri; Individually Prescribed Instruction developed by the Learning Research and Development Center at the University of Pittsburgh; the microteaching program of the Stanford Center for Research and Development in teaching;

the Patterns in Arithmetic program of the University of Wisconsin's R & D Center for Cognitive Learning, and the Intermediate Science Curriculum Study funded jointly by the Office of Education and the National Science Foundation and created at Florida State University. The national assessment of educational achievement being carried out by the Education Commission of the States is a major OE research undertaking.

And, of course, there is Sesame Street, surely the best known product of our Office of Education research effort. Sesame Street reaches an estimated seven million children daily at an average cost of$1.29 per child per year. We are attempting to build on this success by designing television instructional programs modeled on Sesame Street, yet directed at differing age groups with widely varying educational requirements. For this purpose we would stimulate the assembly of other "laboratories" like Children's Television Workshop, developer of Sesame Street.

I recognize that not all the products I have named are undiluted successes. There is, in fact, dispute in the academic and scientific communities as to which elements of these efforts are good and useful and which are not. Other concerns have yet to be settled. The question, for example, of who should deal with children's early study of mathematics -- mathematicians, psychologists, psychometricians, or mathematics educators -- has a 40- or 50-year history of struggle in the United States. One of the major purposes of NIE will be to reconcile such differences. NIE will be, I hope, a unifying factor, drawing together all science, academic discipline, and art in the service of better education.

The achievements of educational R & D have taken place despite a rather begrudging commitment in comparison with the effort we make as a Nation in health and agriculture.

-- In 1968 the man-years devoted to research, development, and innovation in education totaled just 5,390; in health, 59,400, more than 10 times as much.

-- Only a few thousand researchers work on education and most of those only part-time; in health the figure is many times higher.

-- Since 1950 the Nation has invested less than $1 billion in educational research and development at all levels of government; in that time, $7 billion has been devoted to agriculture research and $14 billion to health research. Private industry's research and development investments have been even higher. The electrical equipment industry, for example, spends $4.2 billion a year on R & D, the aircraft industry $5.6 billion.

In sum, our successes have been of a very limited kind, tantalizingly incomplete and inevitably disappointing because, contrasted with them, the job that is left undone becomes more starkly apparent. We have lighted a few candles and they burn brightly in the lives of thousands of children. But millions of children and adults remain in darkness.

To meet the requirements of these millions, present and future, will demand a larger success than we have enjoyed to date; it will demand that we reach for a total and continuing commitment to the elusive goals of completely effective teaching and learning. Encouraged by the progress of the last few years, we now propose to leave the infancy phase of educational research and development, initiating through the agency of NIE programs of research and development on a scale to benefit the whole of the American educational enterprise, from preschools

through graduate schools, from the tot just entering upon life -- or, indeed, his prenatal mother -- to the retired businessman seeking the knowledge he needs for continued useful, productive years.

Although we must await the action of Congress to determine the final nature and scope of NIE, we are moving ahead now to develop workable solutions to some of the hard problems that must be solved before the Institute can become an operational reality.

How, for example, can we develop an administrative structure that will permit the Institute to function efficiently and yet with total creative freedom? How can we attract and hold the ablest appropriate scholars of the land and, for that matter, to what shall these men and women address to their talents, and in what order of priority? Finally, how will we relate the NIE with the Office of Education without encumbering it with the conventions of formal government?

We have established an internal planning group to analyze these questions and devise a detailed first-year agenda for the agency's program and organization. Since this work is still in progress, it is well to remember that much of the thinking I will describe to you must still be considered tentative. With that caveat, let me share with you our general views on how the NIE would operate.

NIE Organization

First, NIE will be a separate agency within HEW, detached from the Office of Education. It will report through the Commissioner of Education to the Secretary of HEW. NIE will be responsible for planning and direction of research and development at all levels of schooling, while the Office will administer operational programs, as it does now. The Office will, furthermore, be strongly linked with NIE for the necessary "input" of ideas and needs, and for the follow-up dissemination of NIE products.

The Director of the Institute will be a Presidential level appointee, according the position the status to recruit a national figure, commanding the respect to attract the very best scientists, educational practitioners, public administrators, and others essential to the high importance of NIE. Above all, NIE's Director must be capable of developing solutions to pressing educational problems. He need not be overly concerned with administration and Congressional relations because these are areas in which the Secretary of HEW and the Commissioner of Education can play a strong supportive role for NIE without cluttering its affairs with unnecessary governmental restraints.

The Director will be assisted by a National Advisory Council on Research and Development. The Council will be involved in setting general policy for NIE and in coordinating its efforts with outside agencies such as the National Science Foundation, the Office of Economic Opportunity, the National Institute of Mental Health, the Office of Child Development, and so on. Some personnel would rotate from NIE to the Office of Education and back again to maintain close cooperation between the two sister agencies, bringing real-world experience to NIE planning and a high level of knowledge and motivation to the operations of the Office.

At least two kinds of functioning groups will exist within the Institute, Task Forces addressing major problems and Study Groups seeking to understand the nature of the processes of education at a deeper level. Both will consist of permanent NIE staff people, plus outside consultants and short-term fellows of the Institute.

Two parallel efforts will supplement the task forces and study groups -- an intramural program of research and development, and a researcher-training program operating through institutes, fellowships, and training contracts.

Civil Service Exemption

However the staff is organized, certain personnel patterns characteristic of learning research and development agencies will emerge. These distinctive patterns will be made possible in large part by the bill's authority to hire and compensate technical and professional staff exempt from Civil Service classification and compensation regulations. This authority, I should stress, will only apply when there is a specific reason to use it -- hence very likely many of the staff members will be hired under the civil service system. The special authority is not likely to be used for those engaged in support functions for the agency such as budget, personnel, and contracts.

The concept of Civil Service exemption authority builds upon the experience of other successful research and development institutions, such as the National Science Foundation and the National Institutes of Health. As these agencies have found, drawing the highest quality staff for research and development requires staffing patterns and compensation levels specially adapted to the career patterns and professional traditions of the scholarly community. Exemption permits, for example, a system of short-term, non-career appointments. Distinguished academicians and educators whose permanent career commitment is to a university, school system, or industry could join the NIE staff for even shorter periods to work on a single project. In addition, the authority would permit streamlined hiring procedures particularly suited for short-term, high-level personnel.

With flexibility in recruiting and the ability to pay salaries commensurate with the type of talent that is sought, we hope to attract to NIE the most significant names in education. But beyond our distinguished colleagues in education, we would also expect to attract their counterparts from many other disciplines such as sociology, bio-chemistry, psychiatry, medicine, anthropology, and so on.

NIE Objectives

What will these scholars and academicians do at NIE? This question is presently absorbing the attention of a good many thinkers and planners and we feel a broad pattern of priorities is emerging from these deliberations, the principal areas to which the fully functioning NIE will address its organized talents.

Let me stress that such speculation no way implies limiting the scope of the organization. In truth, as we envision NIE, the entire universe of educational concerns will be its concern. NIE will have the range of capabilities required to match the wonderfully varied, endlessly changing, hundred-sided activities of education. It will deal with the concrete problems such as education of the disadvantaged, career education, higher education. But the men and women of NIE will not be harnessed to immediacy; their purpose will be as broad as the very nature of learning itself. They will look deeply into the learning process in all its physical, biological, and psychological aspects, to explore in an unfettered atmosphere of pure invention the far reaches of man's capacity to create knowledge and transmit it. The knowledge base upon which education now rests, our ablest scholars agree, is still in its infancy. We propose to increase it systematically.

More concretely, I would like to sketch for you briefly some of the objectives and plans we have in mind in establishing the Institute.

First, it will seek new knowledge and new insights into educational experience. It will do basic research into the learning process in all its sociological and physiological variables. We will want to undertake studies that may not lead to immediate changes in practice, such as the examination of the effects of chemical stimulation upon learning, as well as studies that are likely immediately to influence present policy and practice. It will certainly be concerned with increasing the productivity of teachers; it will look for ways to utilize technology to enhance the teacher's life; it will look for ways to make education available and deliverable to all who want it whatever their circumstances.

Second, NIE will seek useful alternatives in educational practice in order to offer the people of this country a far wider range of new procedures, new operations, and new products than they presently enjoy. One choice in anything is simply not enough. An elementary school curriculum that works perfectly well in Boston, for example, could be wholly incorrect, ineffective, and perhaps even damaging in San Antonio, Texas. And we must recognize in our schools, at every level, that there is no single ladder for individual fulfillment and success. If boys who love to fix cars are becoming unhappy office managers, somebody is wasting money, talent, and happiness -- precious commodities that we waste at our individual and collective peril. We have much to learn about human needs and the capacity of our institutions of learning to help its individuals meet those needs.

Certainly administrative and management issues and problems will be apt topics for NIE's investigation as we try to establish closer ties between the costs of education and its beneficiaries. For example, we could conceivably develop and extend to the entire Nation a plan such as the one Ohio State University will soon begin operating in which students will be allowed to pay for college out of the future earnings of all students. Or perhaps business and industry could assume a specific new tax for higher education, a talent tax that corresponds to the number of college graduates annually engaged.

Third, we see the Institute strengthening the Nation's research and development capability through the stimulation and training of new scholars. The new respectability of educational research will, I believe, greatly increase the number of competent professional persons engaged in the field. Even in the unlikely event of Congress appropriating a billion dollars this year for education research and development, expenditure of such a huge sum while compatible with other fields of research, might actually cause more harm than good because there are not enough competent people around to do the work at this level of investment. And even if we were able to collect together all the talented people in this country who would like nothing better than to work for the improvement of education, we have neither the organization nor the network of communications to absorb their efforts fruitfully.

NIE will take the responsibility of coordinating the educational research and development efforts throughout the entire Federal Government

as well as providing general leadership and support to training now taking place within universities and laboratories. The Institute will also administer grants, institutes, and fellowships as methods of supporting and encouraging the growth of competence in people committed to educational research and development.

Fourth, the Institute will undertake the invention and perfection of ways to deliver educational innovations we know are successful. Whatever sort of breakthrough we achieve in teaching and learning, it will be useless unless it is linked with a system for delivery that works. That is why I maintain that NIE holds the genius of that central system, flowing collegially, constructively, and systematically through the education network into the classrooms of America. Systematizing the art and science of teaching is one of the principal reasons for NIE. The art and science of teaching are very human things, changing with the people affected, and with the time and place. NIE must be, more than ordinarily, a humane institution.

We know there are many sound innovations in education, methods that have proved their effectiveness over and over again. I refer to such techniques as peer tutoring, individual progress programs, and the use of paraprofessionals in the classroom. But we also know that too many systems are skilled at protecting themselves from the invasion of a good idea and, as a consequence, good techniques such as those I just alluded to -- and many more -- are serving only a fraction of the school-children of this Nation, illuminating as I said earlier, only a fraction of the darkness.

NIE's dissemination efforts will build upon and utilize the facilities and experience of the National Center for Educational Communication, the Office of Education's dissemination arm, and other delivery systems. Parallel with the growth of NIE, I see a reshaping of the total commitment of the Office of Education to accelerating nationwide use of tested educational improvements resulting from NIE and other efforts. We can no longer accept a situation in which we can deliver a new mouthwash to 200 million Americans in a matter of weeks while a new system of education to freshen the quality of our minds moves with glacial imperceptibility. The dissemination of NIE's products and processes is one of the principal reasons for the close articulation with OE and its vast human network of States, local systems, and classrooms.

To summarize our thinking about the role of NIE, we believe that the lion's share of the agency's budget would be devoted to mobilizing the ablest scholars and directing their talents to comprehensive research and development programs seeking solutions to education's most serious problems. Some of these solutions will build on the best current techniques -- and many will probe radically new approaches to learning. All will lean heavily on development and on the invention of effective means of translating ideas into readily deliverable materials and practices workable -- and working -- in the field. The Institute's independent, creative atmosphere and flexible organization will enable its staff to take a hard look at the common assumptions and hallowed traditions of the profession and expose us to ourselves where we are found wanting, suggesting solutions.

Teams of people with different expertise -- research and development personnel, educators, teachers, public officials, engineers, economists, statisticians, artists -- will be organized around basic problems. They will plan research and development programs designed to yield new knowledge, materials, and methods, coordinated to provide powerful leverage on each problem. For example, finding successful approaches to educating the disadvantaged might mean supporting a range of projects from basic language studies to designing alternatives to formal schooling for alienated ghetto teenagers.

Relationship Between NIE and OE

As many of you know, when I became Commissioner in December several new staff members joined me in the Office of Education. Among them is Harry Silberman, director of the National Center for Educational Research and Development, the Office of Education's present research operation. A principal concern of his has been to reorganize NCERD in preparation for transfer of most of its functions into the Institute while continuing to operate the OE research and development effort until NIE becomes a reality. Harry is already assembling able and lively people to reinforce the NCERD-NIE component during this period of development.

NIE must be responsive to the Office of Education's role in serving American education broadly. The Office of Education, for its part, must be in a position to help formulate the questions NIE would address. Further, OE must strengthen and expand the delivery system for promoting implementation of the practical results of educational research and development in the field. There is a large new role for OE in this

context which I call leadership and some call technical assistance. Stated simply, it is that a new idea will be delivered and sustained not only by memoranda and journal articles but by people on call.

To summarize, NIE would assume most activities now conducted by the National Center for Educational Research and Development. NIE would become responsible for programs in basic research, ongoing development activities, the research and development centers and regional education laboratories, research training, and construction of research and development facilities.

The Office of Education would retain its responsibility for evaluation and policy-oriented research relating to OE programs and gathering and dissemination of statistics. While NIE would be charged with designing new delivery systems for research products, the Office would oversee demonstration and dissemination activities and support and deploy whatever new system the NIE might develop.

We look to NIE to bridge the education and related research and development activities of all Federal agencies, activities largely unconnected at the moment. NIE would act as a clearinghouse for information on relevant programs and provide an intellectual meeting ground where personnel of various government agencies can reason together about educational problems, supporting each other, avoiding duplication and cross-purpose. For example, extraordinary institutional materials have been developed by the Department of Defense. No systematic arrangement exists for their adaptation and articulation with the school systems of the country.

National Foundation for Higher Education

Before closing, I would like to touch briefly on the projected relationship between the Institute and another Administration initiative, the National Foundation for Higher Education. These instruments, while very different, have been confused in the minds of some, perhaps because they are both now being advanced in legislation at the same time.

In the broadest sense, the Foundation will be a new Federal vehicle to help higher education to reform itself and renew itself and to help it cope with the realities of increasing enrollment, new social expectation, and accelerating technological change. It would be a device to help colleges and universities decide rationally what they want to become and, when they have organized their plans, to provide seed money to help get them underway.

The need for institutional change is forcefully argued in the recently released Newman Report on Higher Education. It states, "The system (of higher education) with its massive inertia, resists fundamental changes, rarely eliminates outmoded programs, ignores the differing needs of students, seldom questions its educational goals, and almost never creates new and different types of institutions." While I do not go along with all of these generalizations as applying to all higher education, the issue is drawn for all to consider.

The Foundation, we believe, will help turn that situation around by providing aid to develop new kinds of institutions as well as strengthening those we already have, and by working toward development of a national policy for higher education. While NIE devises and tests new educational methods at all levels of instruction as a research body, the Foundation will encourage the demonstration and adoption of promising

practices in higher education that we already know about but haven't fully applied. It will indeed be a foundation, not a research activity. NIE will deal with broadly based problems and practices, at all levels of education, while the Foundation will target on the needs and issues of higher education alone. The same coordination mechanisms linking NIE to the Office of Education -- boards of directors, staff exchanges, and reporting through the Commissioner -- would join NIE to the Foundation.

The great problems of education have a peculiar endurance. Ignorance lives on today as it has throughout recorded history in companionship with learning. The nonreader on the lower East Side of New York City today is but the newest recruit to that tragic fraternity and the child who rejects our educational offerings and consequently cannot benefit from them is very nearly as commonplace as the child who flowers and flourishes to the fullest under education's benefits. And to these antique conundrums of society must be added year after year the pressures and problems unique to our time and place in history and to society's ever-rising expectations. One thinks of drugs, environment, and changing career demands, to name a few.

And yet, I think, there is a difference today from, say, 25 years ago or perhaps even 10 years. There is a far wider perception and deeper understanding of our problems as detrimental not simply to an individual boy or girl who cannot read, but to an entire Nation whose nonreaders and other deprived members comprise a menacing subculture undermining and mocking the security and progress of the rest, and challenging most profoundly our ideals of justice and opportunity for all. This condition gnaws at the conscience of the "successful" more than ever before.

For many reasons, then, practical as well as idealistic, we have begun to attack our educational problems and to probe our education potential. Our approach is impassioned, as the search for truth and justice must always be. But it is now intended to be systematic and, with the coming reality of the National Institute of Education, intelligent, humane, and productive as well.

The National Institute of Education is an embodiment of very large national aspirations and with enough money, talent, and fortitude in the face of inevitable periodic disappointment, I believe the Institute will bring those aspirations to fulfillment.

In a Nation that has attached scientific inquiry with great profit to nearly all of its major interests -- medicine, industry, commerce, communications -- it is time that education, perhaps the over-riding concern of Americans as we rank our values should now come to adulthood.